The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte IAN L. GRAY

Appeal No. 2005-1809
Application No. 09/486,183

HEARD: SEPTEMBER 13, 2005

Before OWENS, WALTZ, and PAWLIKOWSKI, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal is from a rejection of claims 12-24, which are all of the pending claims.

THE INVENTION

The appellant claims a pultrusion method for producing a fiber reinforcement containing additional reinforcement fibers that provide the composite with variable strength characteristics along its length, and the appellant also claims products made by

the method. Claim 12, which claims the method, is illustrative:

12. A method of producing a fiber reinforced composite by pultrusion having variable strength characteristics along its length, said method comprising the steps of:

drawing through a pultrusion die a series of reinforcing fibers to form a pultruded fiber composite product

incorporating by at least one of splicing, interlacing and otherwise distributing in the reinforcing fibers prior to the drawing step additional fibers in order to vary the strength characteristics of the final product substantially without altering the cross-sectional area thereof, a plastics matrix material being applied around the fibers and allowed to solidify to form the finished composite.

THE REFERENCES

Kalnin	3,691,000	Sep. 12, 1972
Street	4,428,992	Jan. 31, 1984
Beall	4,983,453	Jan. 8, 1991
Vane	5,055,242	Oct. 8, 1991
Yokota et al. (Yokota)	5,266,139	Nov. 30, 1993
Durand et al. (Durand)	5,882,460	Mar. 16, 1999
Gorthala et al. (Gorthala)	6,007,655	Dec. 28, 1999

Lydia Krutchkoff, "Pultrusion, Part 1 - Process Converts Thermoset Materials Into Finished Shapes Continuously", *Plastics Design & Processing* 34-38 (July 1980).

Jeffrey D. Martin and Joseph E. Sumerak (Martin), "Pultrusion", *in Engineered Materials Handbook, Volume 1, Composites"* 533-43 (Cyril A. Dostal et al. eds., ASM Int'l 1987).

Michael C. Gabriele, "Pultrusion's Promise", *Plastics Tech.* 36-40 (Mar. 1995).

THE REJECTIONS

The claims stand rejected as follows: claims 12-14, 16, 18, 20 and 21 under 35 U.S.C. § 102(b) or, in the alternative, under 35 U.S.C. § 103, over Vane; claims 12-14, 16, 18, 20 and 21 under 35 U.S.C. § 103 over Vane in view of Kalnin, Durand or Gorthala; claim 15 under 35 U.S.C. § 103 over Vane in view of Kalnin, Durand or Gorthala, further in view of Yokota or Street; claim 17 under 35 U.S.C. § 103 over Vane in view of Kalnin, Durand or Gorthala, further in view of Beall, Gabriele or Martin; claims 19 and 20 under 35 U.S.C. § 103 over Vane in view of Kalnin, Durand or Gorthala, further in view of Martin or Krutchkoff; and claims 21-24 under 35 U.S.C. § 103 over Vane in view of Kalnin, Durand or Gorthala, further in view of the appellant's admitted prior art.

OPINION

We affirm the aforementioned rejections.

We limit our discussion to the only claim argued by the appellant, which is claim 12. *See* 37 CFR § 41.67(c)(vii)(2004).

Vane discloses a method for producing a fiber reinforced composite by pulling yarns or threads of a reinforcement material through a pultrusion die to wet the reinforcement material with

synthetic resin (col. 4, lines 15-36; col. 6, lines 29-43). The reinforcement material is made from a plurality of superimposed layers that can have inserted between any of them, prior to stitching of the layers, pieces or patches of reinforcement material that provide additional reinforcement or thickness (col. 5, lines 24-65).

The appellant argues that Vane's pieces or patches of reinforcing material provide additional reinforcement thickness and, therefore, substantially alter the cross sectional area of the final product (brief, page 12; reply brief, pages 4-6). Vane's teaching that the pieces or patches of reinforcing material "provide additional reinforcement or thickness" (col. 5, lines 63-64) indicates that those pieces or patches can provide either reinforcement or thickness. Pieces or patches provided for reinforcement but not thickness would not substantially increase the thickness, even if they increased the thickness slightly.

The appellant argues that Vane's disclosure of pieces or patches of reinforcing material pertains only to the reinforcing material preparation embodiment (figure 1) and not to the pultrusion embodiment (figure 3) (brief, pages 12-16; reply

brief, page 4). Vane's figure 1 pertains to a method for making a reinforcing material which, the abstract indicates, is what Vane refers to as reinforcing material 13 (abstract; col. 5, lines 24-59). The last line of the abstract indicates that the reinforcing material can be wetted using molding (figure 2), pultrusion (figure 3) and wrapping (figure 4) methods. In Vane's discussion of each of those methods, the reinforcing material wetted is referred to as reinforcing material 13 (col. 5, line 66 - col. 6, line 63). Thus, Vane indicates that the reinforcing material wetted in each of the three disclosed wetting methods can be the multi-layered reinforcing material containing pieces or patches of reinforcing material.

The appellant argues that Vane's pieces or patches of reinforcing material cause a step change in thickness of the reinforcing material passing through the pultrusion die which likely would cause breakage of the die or the reinforcing material (brief, page 14). Vane's teaching that the pieces or patches of reinforcing material provide additional reinforcement or thickness (col. 5, lines 63-64) indicate that they can provide additional reinforcement without providing additional thickness, in which case the thickness step change argued by the appellant

would not exist.

The appellant argues that Vane does not suggest the appellant's step of "incorporating by at least one of splicing, interlacing and otherwise distributing" (reply brief, page 4). The inserting of Vane's pieces or patches of reinforcing material between any of the adjacent layers prior to stitching is a distributing of the patches or pieces (col. 5, lines 60-65).

For the above reasons we are not convinced of reversible error in the examiner's rejections.

DECISION

The rejections of claims 12-14, 16, 18, 20 and 21 under 35 U.S.C. § 102(b) or, in the alternative, under 35 U.S.C. § 103, over Vane, claims 12-14, 16, 18, 20 and 21 under 35 U.S.C. § 103 over Vane in view of Kalnin, Durand or Gorthala, claim 15 under 35 U.S.C. § 103 over Vane in view of Kalnin, Durand or Gorthala, further in view of Yokota or Street, claim 17 under 35 U.S.C. § 103 over Vane in view of Kalnin, Durand or Gorthala, further in view of Beall, Gabriele or Martin, claims 19 and 20 under 35 U.S.C. § 103 over Vane in view of Kalnin, Durand or Gorthala, further in view of Martin or Krutchkoff, and claims 21-24 under 35 U.S.C. § 103 over Vane in view of Kalnin, Durand or Gorthala,

further in view of the appellant's admitted prior art, are affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (effective Sep. 13, 2004; 69 Fed. Req. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat. Office 21 (Sep. 7, 2004)).

AFFIRMED

TERRY J. OWENS
Administrative Patent Judge)
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THOMAS A. WALTZ) BOARD OF PATENT
Administrative Patent Judge)
) APPEALS AND
) INTERFERENCES
)
BEVERLY A. PAWLIKOWSKI)
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TJO/dpv

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